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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/718,175

11/19/2003

Preetham Kajekar

50325-0817

9355

29989

7590

12/14/2009

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EXAMINER

CHEA, PHILIP J

ART UNIT

PAPER NUMBER

2453

MAIL DATE

DELIVERY MODE

12/14/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/718,175	Applicant(s) KAJEKAR ET AL.	
	Examiner PHILIP J. CHEA	Art Unit 2453	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/24/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claims 1-72 have been examined.

Claim Objections

1. Claims 28-29 are objected to because of the following informalities: It appears that claims 28 and 29 should be dependent on claim 27, not claim 26. Appropriate correction is required.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 49-71 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The computer readable medium claim indicates that the medium can be carried, e.g. carrier waves, or signals. Carrier waves or signals are not considered to fall under one of the four statutory categories of invention. The Examiner suggest amending the claim to read "A computer-readable storage medium..." to overcome the prior art rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (US 2005/0193430), herein referred to as Cohen, and further in view of Milliken et al. (US 7,200,105), herein referred to as Milliken.

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As per claims 25, 26, Cohen discloses a method of determining network penetration, the method comprising the computer-implemented steps of:

representing a travel of a packet in a network based on topology data and on security policy data including at least

defining a packet by at least specifying a source address, an entry port and a destination port;

starting a loop for a current network device (see paragraphs 34-35 and paragraph 69, *it is implied that the packet must travel through a source address and entry and destination port*, and paragraph 75, *showing various ports that the packets may traverse*);

accessing access control list (ACL) data stored in an ACL database and the topology data stored in a topology database (see paragraph 28);

deciding whether an ingress interface of a current network device allows entry into the current network device, if the entry is not permitted, then terminating the loop for the current network device, if the entry is permitted continuing the loop (see paragraph 47);

determining if there are any neighboring network device, if there are not any neighboring network devices, then an indication of the current network device is returned as a maximum penetration point as at least part of results of the step of representing, and the loop is terminated;

if there is a neighboring network device, then the loop continues determining whether or not there are any remaining outbound interfaces for which results of a possible egress of the packet have not been determined, if there are no more remaining outbound interfaces, the loop is terminated, if there are more remaining interfaces, then the current network device is set to the neighboring network device to corresponding one of the remaining outbound interfaces, and if the loop has not been terminated for the current network device, restarting the loop for the current network device (see paragraph 48, *discussing traversing the topology of the network node by neighboring node as long as the attack can continue, and stopping until an attack can no longer be sustained because the constraint of the attack at the current node is not met or it has run out of nodes to continue*).

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In considering the displaying of the graph, Cohen discloses that the attack graph (path of packet travel while penetrating the network is displayed in graph form (see paragraph 30).

Although the system disclosed by Cohen shows substantial features of the claimed invention (discussed above), it fails to disclose determining if a static routing table is present, if the static routing table is present then determining to which interface outbound traffic is permitted to exit, and if the static routing table is not present, then allowing outbound traffic to exit through all outbound interfaces.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Cohen, as evidenced by Milliken.

In an analogous art, Milliken discloses a system for point of ingress traceback of a network attack (see Title). Milliken discloses that a router may include multiple input interfaces and routing tables that may determine the active route to network destinations (see column 4, lines 47-59). Milliken further discloses determining if a static routing table is present, if the static routing table is present then determining to which interface outbound traffic is permitted to exit, and if the static routing table is not present, then allowing outbound traffic to exit through all outbound interfaces (see column 4, lines 65).

Given the teaching of Milliken, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Cohen by employing a determination of a static routing table, such as disclosed by Milliken, in order to gather information about the path of packet travel that is allowed through a router.

As per claims 19,45,68, Cohen further discloses receiving packet parameters that support transmission control protocol flags (see paragraph 75, *showing transmission control protocol ports i.e. FTP, implying the support of flags*).

Claims 1-18,20-24,27-44,46-67,69-72 are rejected on the same basis as claims 25,27 above.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHILIP J. CHEA whose telephone number is (571)272-3951. The examiner can normally be reached on M-F 6:30-4:00 (1st Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Thomas can be reached on 571-272-6776. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Philip J Chea
Examiner
Art Unit 2453

/Philip J Chea/
Examiner, Art Unit 2453
12/8/09